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Practical Bee-Culture.

TRANSLATED FOR THE AMERICAN BEE JOURNAL, FROM THE GERMAN OF C. J. H. GRAVENHORST.

If a practical and progressive beekeeper, having a well-appointed apiary in common hives, came to me, expressing a desire to try the movable comb system, and asking my advice as to the best mode of proceeding, I should frankly say to him: "It is very laudable on your part to be unwilling longer to lag in the rear, but to aim at improvement and progress. Still, I can only consent to give you counsel and aid on condition that you pledge yourself to follow implicitly the instructions I give you; not deviating in the slightest, either to the right or the left, from the course I prescribe. In return for this, however, I can guarantee that your experiment shall result in success; that is, provided you reside, like myself, in a district of country offering moderately good spring pasturage, and the blessing of heaven be not wholly withheld. But if the district in which you reside does not present such spring pasturage, I must request you not to apply to me for counsel. In such case, there are others who could serve you much better than I. Whether movable comb hives are adapted to such a district, is, in my opinion, a yet unsettled question; and one which other beekeepers will doubtless have occasion to investigate and decide."

Should my worthy bee-friend now inquire how I account for the fact that movable comb hives have thus far found so little favor among ordinary beekeepers, I would simply reply: "If the matter be somewhat more closely examined than it usually is, the chief reason will soon become apparent—that is, if we have an opportunity to scrutinize minutely the experiments with movable comb hives which have been made, in various places, by common beekeepers. In the results of these experiments, precisely, will be found the ground of the prevalent prejudice against the new system. I formerly conceived that the greater cost of movable comb hives was the chief reason why they found so little favor with the mass of our beekeepers. I am still of opinion that this is *one* of the reasons, but by no means the *chief*. Common beekeepers judge in this matter by the results attained. If in these their anticipations are realized, they are quite ready to disregard the enhanced cost or the increased trouble attending the adoption of a new system of practice. But, on the contrary, if they are disappointed in results, they will cleave all the more pertinaciously to their old usages. This is rational, and quite natural. The greater number of the experiments made with movable comb hives, furnished unsatisfactory results; and the disappointed beekeepers attributed this to the new kind of hives employed. That, however, was an erroneous conclusion. The fault lay, in reality, with the beekeepers themselves.

1. They had not studied and of course did not understand the new system, and managed their bees in movable comb hives precisely as they did when they kept them in the old-fashioned straw and box hives. And they did this under the impression that this new kind of hive was of itself to produce the results desired. Was it surprising, then, that the experiments miscarried? The new system is essentially different from the old. It must be studied, that a knowledge of it may be acquired; but for a beekeeper of ordinary good sense and tact, there is nothing mysterious or magical about it; and proficiency in its processes may easily and speedily be attained.

2. They generally construct their movable comb hives according to their own whims and notions, deviating from the model hives in various particulars, which they conceive to be improvements; and then attribute their failures, not to their misconstructed imitations and their blundering management, but to the new system and the movable comb hive.

3. They commonly commence experimenting with only a single colony, though an old adage says truly, "One hive is no hive." No fair judgment can be deduced from a single colony in a common hive—much less if it be in one with movable frames in the hands of a begin-

ner. Besides, he who has only one colony, must necessarily forego many of the advantages which the new system possesses and obviously presents.

4. They are not careful to provide, especially for the second year's operations, an adequate supply of empty combs; and thus fail to secure one of the essential conditions of success in reducing the new system to practice.

Now, my friend, if you design to experiment with movable comb hives, and desire me to be your counsellor in the premises, you must promise, *first*, to make yourself well acquainted with the principles of the new system of management; *secondly*, to select and adopt for practical use an approved form of movable comb hive; *thirdly*, to start with *at least* two good colonies—it were better to begin with *four*; and *fourthly*, to provide for the second year a fair supply of good, clean, empty combs. As regards the latter, you will be apt to ask me how and where you are to obtain them, and how you are to preserve them for use when obtained. In reply to this, I would say—adopt the course I pursued, and in due time you will be as well supplied with such combs as I am; and I have constantly on hand a store of them sufficient to enable me, in any year, to give each of my colonies fifteen additional combs. Nor are any of these combs more than three years old, because when they get to be older than that they become friable and I melt them down and sell the wax. My process is as follows: When breaking up colonies in old box or straw hives, I carefully select and preserve every good worker comb or piece of comb, adjusting them all properly in frames. And, secondly, I cause new combs to be built in frames to be ready for use—availing myself for this purpose of the comb-building propensity of the workers. This propensity is peculiarly strong and active in young swarms, and in colonies reduced to the condition of a swarm, by brushing the bees from their combs and transferring them to a hive containing frames furnished with worker comb foundations or guide combs. It is also active in a colony having a young queen just become fertile. In the former case—that of young swarms, or of bees brushed from the combs and transferred—I give guide combs only in so many frames as are suited to the size or strength of the colony. In the other case, I give them at most only three frames with guide combs, and place these each alternately between two full built frames. While doing this I am careful to see that the brooding space in the hive is kept entirely free from drone comb. In hives containing frames more than ten inches long, the prevention of drone comb building is more difficult to be accomplished than in such as have shorter frames, or frames not exceeding that length. Experience has shown that in long frames bees are exceedingly prone to build drone comb. This has led to the adoption of shorter frames, by practical apiarians; and it will be found that among the means of preventing the production of drone comb, the selection of hives not more than ten inches broad, is one of the most efficient. In favorable years, swarms, even when placed in empty hives, will completely fill eight or ten frames with worker comb exclusively; and if that number of frames of such combs has once been obtained, the bees may then be allowed to build drone comb also, if they be so inclined; though these should afterwards be transferred to the supers or the surplus honey boxes. When drone comb is cut out or removed from the brooding apartment, pieces of worker comb should at once be inserted or substituted for it. There is another mode of obtaining a large supply of worker comb for future use, to which I sometimes resort. At the busiest honey season, I brush the bees of a strong colony from their combs into a hive furnished with frames containing guide combs only—thus constraining the bees to build new combs, and using those from which they were brushed to strengthen weak colonies. Of course a beginner cannot employ this method; but if swarms happen to be numerous in the spring, he may hive them all, stimulate them to comb-building, and in the fall unite the bees with other stocks, and preserve the combs they have built for use the next spring. I never had any difficulty in preserving empty combs. I suspend them in my garret, immediately under the ridge of the roof, so placing them that they do not touch each other, and allowing a current of air (which moths dislike) to pass freely among them. Thus placed, neither mice nor moths ever injure them.

Having now stated my stipulations, and also shown that they may easily be complied with, I proceed to explain how you may successfully engage in the new system of bee-culture. As already premised, I would, in the first year, place good strong swarms in four movable comb hives, carefully watching to see that they regularly fill the frames with combs, and that those in the brooding apartment contain worker comb exclusively. In the fall, if in want of empty comb for next season's operations, and you have no other source of supply, I would break up the weaker two of those four colonies, uniting the bees with other stocks, and preserving the combs for future use. Next year, I should devote the two remaining colonies exclusively to honey-gathering, as it would be injudicious to allow them to swarm or to divide them. We can only hope to secure one thing at a time—either honey or swarms; to secure both would require an uncommonly good season and superior management. Accordingly, the storing of honey must now be our chief object—for, remember, we are making an experiment to ascertain whether more can be gained by means of movable comb hives, than by the old kind in common use. The old system has taught us that colonies which, after swarming, are still populous, and are speedily re-supplied with a fertile queen, ever prove to be richest in honey stores, if pasturage be reasonably abundant. And why? 1. Such a colony has no occasion to build comb, or need build very little. 2. For a considerable period it has no brood to nurse, and can therefore store up honey as fast as it is gathered. And, 3, the fertility of the vigorous young queen inspires the bees of the colony with renewed energy. Now that which such a col-

ony accomplishes in the natural course of things and by native impulse, in common hives, we must endeavor to secure in movable comb hives by skilful interference and judicious management. Hence, the primary requisite is that the colony must immediately receive a young and fertile queen; and with such we can supply it artificially, much more expeditiously than a colony, having sent forth a swarm, obtains one by the natural process. Moreover, we prevent swarming—thus maintaining the populousness of the colony unimpaired, and enabling it to take full advantage of the honey season, in the gathering and accumulation of stores. Thus, though a colony which sent forth a natural swarm and has in due course obtained a young and fertile queen can accomplish much; another, in a movable comb hive, which has, by proper management, been placed and kept in similar conditions, must and will, in an equally favorable locality, unquestionably accomplish more; because it retains all its working force uninterruptedly, and is more speedily supplied with a young fertile queen This certainly will be the result, with proper management. But to provide a colony with a young queen, it becomes necessary to remove the old one. This we proceed to do, as soon as the population has so increased that the brood extends down almost to the lower margin of the combs, and there is reason to expect plenty of pasturage soon. We must previously, however, have made arrangements to have a supply of nearly mature queen cells ready, on the day prior to the unqueening of our colony. There are various methods of effecting this. One of the simplest is to prepare a nucleus colony for rearing queens, marking the day when the queen cells are sealed, and then removing them at the proper time. From the time of the sealing of the cells to the emerging of the queen, seven days commonly elapse; but the cells are usually in the proper condition for removal on the fourth day after sealing. On the second or third day after the sealing of the queen cells in the nucleus, I remove the queen from the old colony. In a populous colony it is not always easy to find her. In such case, I proceed thus: I open the hive and lift out a brood comb from near the middle of the brooding space. If the queen is found on that comb, all right; the removal is quickly effected, and there is no further trouble. But we are not always so fortunate in our search, and if the queen is not found on that comb, I lift out the division board from between the brood combs and the store combs, introduce the removed comb there, and insert a frame with empty comb in the place left vacant by the transfer. The queen, in the course of her daily perambulations in the hive, will find this empty comb, and having already felt herself cramped for room to deposit her eggs, at once takes possession; and she will be the more active in supplying the cells with eggs, as she has an instinctive desire to fill up all vacancies in the brooding space. Hence, on lifting out this comb next day, the queen is almost invariably found on it, or will be found there in the course of an hour or two. But before commencing the unqueening operation, I make some other required preliminary arrangements. I take a nucleus hive adapted to receive four combs and place therein two frames furnished with guide comb, and one frame built one-half or nearly two-thirds full, containing about two pounds of honey in the cells. This leaves room for the insertion of a fourth comb. I place this nucleus hive in some convenient spot near the colony to be unqueened. When I find the queen on the inserted decoy comb, I remove from the hive a comb containing brood nearly mature, place the captured queen on it, and insert it with all its adhering bees in the nucleus hive. I now lift out several other frames from the parent colony, brush off the bees from the combs in front of the nucleus hive, and return the frames to their place in the old hive. The bees brushed off readily enter the nucleus hive, and rejoin their queen. After having thus obtained a sufficient stock of bees, I close the entrance, and carry the nucleus hive to my cellar, where it is left four or five days; or I send it to some distant place in the evening. On the fifth day I return it to the apiary, giving it a new location, and allowing the bees to fly. Some of the older ones will return to their former quarters, but the greater number will adhere to their old queen and soon begin to work. On the day after the unqueening I again open the parent hive, lift out a comb containing brood, and insert a queen cell in it, without brushing off the bees. A queen cell thus inserted in the middle of the brood space is almost invariably accepted—none have ever been destroyed for me. But still, as we can never feel entirely secure that the bees will not thwart our best devised plans, I lift out the comb again in the evening or next morning, to assure myself that the cell has been properly fastened, or to insert another in case it has been destroyed. I examine it again on the day on which, according to my memorandum, the young queen should emerge, to see whether the cell has been regularly opened, or whether the embryo queen has perished or been destroyed. If the result has been favorable the colony will thus have received a new queen in three or four days, and we may expect to find eggs and larvæ in the cells within two weeks from the day of unqueening; whereas a colony that sends forth a natural swarm will not again have brood to nurse until after the twenty-eighth day. If the requeened colony were now left undisturbed, after-swarms would almost certainly be produced by it. I therefore open it again on the ninth day after the removal of the queen and destroy all the queen cells I can find. Should a swarm nevertheless issue—that is, should the young queen leave, with a portion of the workers, I simply return them, and find no further trouble. During the period when the unqueened colony has no brood to nurse, and even for some days after the young queen becomes fertile, all the honey gathered by the workers will be stored up; and, what is of no small importance, it will for the most part be stored and capped in the upper section of the combs in the brooding apartment; and so long as honey can be obtained abroad, the bees will not resort to this store of sealed honey—their native instinct teaching them to use first the

honey stored in the lateral combs. Hence, if, when destroying the queen cells, I find one or two combs nearly filled with capped honey, I do not insert the division board between the brooding apartment and honey space, but place one of these full combs of sealed honey in its stead; and if there be more than one, placing the second next to the first, on the side towards the honey space, and then fill out that space with empty combs—using drone combs in preference for this purpose, if I have any. The queen, when ovipositing, rarely passes beyond combs filled with capped honey, in her search for empty cells; and the workers will use the space beyond for the storage of honey.

Were all the brood contained in the combs now permitted to mature in the hive, the colony would speedily become over-populous, and the multitude of workers interfere with the due storage of honey. Too dense a population may thus be almost as disadvantageous as one that is too sparse. We must therefore be careful at all times to have the hive so stocked with bees that the combs are duly covered, but not so crowded that the masses must cluster below the frames and on the front of the hive. To prevent this latter we must seasonably remove two or three combs with sealed brood derived from the old queen, and replace them by empty worker combs. From the removed combs, I take off the bees in the following manner: I open the parent hive, take away the honey board, and with a hand brush sweep down the bees on the tops of the frames. They will at once re-unite with the colony. The combs thus deprived of bees are then given to the nucleus hive, containing the old queen; and to make room for them I transfer frames from the nucleus to a larger colony. Should I subsequently deem it necessary to do so, I take some additional combs from the parent hive, now containing the young queen, and insert them in a nucleus or artificial swarm. It is wonderful to see how prolific such a young fertile queen will prove to be, when placed in favorable circumstances. She is able to furnish eggs for at least two colonies. But the old queen also, if she has not passed her second or third year, will once more display her productiveness in all its pristine amplitude. He who has a large apiary, and knows how to avail himself of this, can readily multiply his colonies as though by steam—quickly building up nuclei and weak stocks to powerful colonies. Nor need any diminution of honey-gathering and storing be apprehended, while this rapid multiplication of stock is going on. The presence of brood will only incite the workers to increased activity, and honey will soon be seen glistening in the cells, if pasturage is plentiful; and then the honey comb-emptier may come into play, which in poor seasons will not be much used; though even in such seasons a strong colony, managed as it should be, will be able to lay up stores enough for the winter. But in a good season, such a colony and its artificial swarms will be able to produce splendid results; and he who has once seen them achieve these, will have learned properly to appreciate the new system of management, and be ready and anxious to make further progress in the course on which he has entered.

It is of course understood that the foregoing is a mere hasty outline sketch of practical operations. He, for example, who engages in bee-culture with movable comb hives, must, as his first object, endeavor to secure the multiplication of colonies; and he must consequently proceed in many respects differently from what is indicated above as proper for a different purpose. Of this more hereafter.

[From the Bienenzeitung.]

A Companion for Hruschka's Ventilated Hive.

(See AMERICAN BEE JOURNAL, vol. 3, page 26.)

When a second swarm issues from any of my hives late in the season, I usually seek for and remove the queen and let the bees return to the parent stock, to avoid the necessity and trouble of re-uniting them in the fall. I did this with one issued on the 12th of July, 1867. It had hung clustered in the window of my garden house, when I shook it down on a table late in the afternoon, hunted for the queen, removed her, and brushed the bees out at the window. One portion of them returned to the parent hive, but another portion—a cluster about as large as my two fists, re-entered through a small hole in one of the window panes, and settled where it had hung before. I was not aware of this, however, until next morning, when I again brushed them out; but unwilling to be thus summarily expelled, they quickly returned, in angry mood, and clustered as before. I concluded to let them have their own way, under the impression that, after they had gratified their whim, they would withdraw of their own accord. But they did not leave, and to keep them from starving, I supplied them with some small bits of honey in the comb. On the 19th of July I chanced to find an expelled queen, which, being then of no value to me, I introduced to this destitute and exposed swarm, and she was readily accepted. On the 20th, at two o'clock in the afternoon, this diminutive swarm suddenly took French leave, rushing out, and then settling on a lower limb of a tree in my orchard. I succeeded in catching the queen, removed her, and left the bees to their fate. But, behold, in ten minutes after they returned in a body to their old location in the garden-house! On the 21st, I found another expelled queen, which being young and yellow, I gave to the now queenless colony, where she was kindly received. They now remained contentedly in this exposed location, and began to build combs—passing out and in through the hole in the window. On the 28th, another second swarm issued from one of my stocks, and being secured, was carried in and shaken down on the table at the window in the garden-house, that I might search for its queen. But almost instantly the bees began to ascend the window, in orderly procession, and in fifteen minutes had

quietly united with the colony already located there. Next day the bees flew briskly, using the hole in the window as a common passage. On the 14th of August, I found that they had built downward five fine combs, twenty-one inches long and ten inches broad. I now left the door of the garden-house constantly open for their accommodation, and they at once gave the new passage-way the preference—continuing to labor with great assiduity. Judging from appearances that they had not a pound of honey in store in the combs, I gave them, on the 20th and 21st of September, seven pounds of granulated sugar dissolved, which they eagerly and speedily carried up. On the 10th of October, I covered the cluster in the room with three folds of woolen blanket, and protected it on the outside with a stout sack nailed against the window; and thus left it.

On the 17th of January and the 17th of February, when bees from my other hives were flying, none made their appearance from this colony, though they always responded promptly with a buzz, when I tapped on their domicile to ascertain whether they were living. On the 23d of February, they first began to fly, and repeated this with a general "turn out" on the 29th. No dead bees were carried out; and from the 9th of March on, they flew regularly and briskly, showing that the colony was then already populous—being actually the most lively and vigorous colony in the apiary, for where any sweet was to be appropriated they were sure to be first on hand. I now resolved, in the first place, that they should build no drone comb, and with this view, I attached to one side eight worker combs built on bars—thus the entire window, thirty inches long, was filled out. I resolved, in the second place, that the colony should not swarm, if it could be prevented; and to that end I removed the woolen blanketing on the 23d of April, thus leaving them and their location open and exposed, as in the previous summer. Nevertheless, they increased so rapidly in numbers, that, on the 24th of May, all the combs were densely covered, and a large cluster was suspended below, busily building drone combs. I now again left the door of the garden-house constantly open, and they soon passed in that direction in main force. It might now be truly called a colossal colony. But to my great regret, and in spite of all my precautions, a strong swarm left on the 22d of June. I then determined to direct all my efforts to prevent after-swarming. As soon as I heard the first young queen teeting and others responding, I shut the hole in the window and closed the door of the house, preventing all egress. After keeping them in confinement four days, I concluded to let them fly for an hour or two; and at noon, on the 4th of July, I opened the hole and the door; and in eight minutes after swarming began. I closed the hole and door again, darkening the chamber, but nothing could now restrain them. In the darkness they pitched down on the table at the window and rolled so wildly about on it in dense masses that I was glad to set them free once more. Hastily attaching a swarming net to the window, I arrested the swarm as it was making its exit there, and transferred it to a hive. I feared that the parent stock was now so greatly reduced in numbers as to be worthless; yet in October following it again hung there as before, in colossal strength. At the end of October, I once more applied the protecting woolen blankets. In the course of the winter, the bees flew out repeatedly, and to-day (April 20th) they are vigorous and active.

Now, what have I learned from all this?

1. *In wintering bees, it is needless to be so exceedingly careful and anxious*, if they are well supplied with stores, and their hive can shield them from the severity of the weather. Placing them in some wintering repository, is a useless and superfluous labor; and is less conducive to their health and comfort, than when wintered out of doors. For twelve years past, I have wintered my bees alternately in a cool, dark, dry, and quiet cellar, and in the open air. When housed many died, dysentery prevailed among them, and the stocks were weak in the spring. When left in the open air, on the other hand, none of these evils were experienced.

2. *Water dearth is a mere imaginary trouble*, for the colony had overhead no covering on which vapor or moisture could condense. The window recess is only four inches broad, and all the rest was covered with woolen blanketing, which certainly absorbed all moisture. During the last fourteen years I have kept my bees in top-opening hives. In the first four years, I did not close the interstices between the slats forming the honey board, leaving open such of them as the bees themselves had not closed; merely placing thereon a sheet of thick paper and a cushion filled with hay:—and they wintered well. Then the idea occurred to me that it might be better to close all these interstices thoroughly. Adopting the notion, I plastered them shut with clay. But the bees did not winter any better than before. As this plastering in the bee-house was attended with much inconvenience, I omitted it during the last four years on the six colonies wintered there; and these not only passed the winter as well as any of the others, but came out last spring as true colossal colonies. I had merely, as in former years, placed a sheet of thick paper on the honey board, laid an old coffee bag on that, and covered this with a layer of about four inches of hay. *There was no trace of water dearth!* Only be careful that your bees are not restricted to old candied honey for winter food.

3. *Bees will swarm when so disposed*, in spite of all the preventions the Bee-keeper may use. Give them as much room as you please, and ventilation to reduce the temperature; yet go they will, if the swarming mania seizes them. This colony had the entire garden-house as room for expansion; and that it is a cool place, I am very certain; still the swarm left. Only by removing combs of maturing brood, and inserting empty combs, can swarming be prevented.

4. *That a colony may be well wintered on seven pounds of granulated sugar.* In the first year my small colony had not one pound of honey in store. I gave it seven pounds of granulated sugar in solution, and it was in a splendid con-

dition in the spring. Granulated sugar is preferable to sugar candy, first, because it is *cheaper;* and, secondly, because it is *more soluble.* On the 1st of October I placed equal quantities of this sugar and of candy, side by side, in a small open box in my cellar. On the 20th, the granulated sugar was completely liquified, whereas the candy then merely showed signs of moistness. A saucer of dissolved granulated sugar, exposed in my sitting room, began to candy only after the lapse of nine weeks.

Moreover, I apportioned fifty pounds of granulated sugar among twelve stocks insufficiently supplied with stores, allotting to each in proportion to its seeming deficiency, and estimating one pound of granulated sugar as equivalent to three pounds of honey; and all these passed the winter in excellent condition.

BOTTNER.

[From the London Gardeners' Chronicle.]

Honey Dew.

I have been interested in a discussion on honey dew, which has lately appeared in your columns. As a beekeeper I have often paid attention to this subject. My opinion is that honey dew may be caused in two ways; but that it is generally caused by aphides. It is extracted from the under sides of the leaves, and expelled from their bodies with considerable force, much of it naturally falling on the upper sides of the leaves. I have felt the shower on my face, when standing under a tree which was affected by honey dew. A flagged pavement in our city has lately been quite dark-colored and clammy from the saccharine shower. But, as the result of my observation, I am convinced that honey dew is also frequently an exudation from the pores of the leaves—a sweating, as it were, of saccharine matter, totally unconnected with the operations of any insects. Some years since, honey dew exuded from the currant trees in my garden, to such an extent that large drops formed on the tips of the leaves. The bushes were almost entirely free from aphides. What few were there, were evidently there as a consequence, and not as a cause. In fact, I doubt if they could have existed on the leaves to any great extent, as the exudation was so profuse that they would have been completely clogged and smothered with it. The weather was intensely hot for several weeks at that time. I have on various occasions since observed the same sort of honey dew on other fruit trees. I have taken some of the dripping leaves to the entrances of my hives; but the bees did not seem to care much about appropriating the luscious fluid. The probability is that bees do not gather so much from honey dew, as is generally imagined; but that while the condition of the juices of plants and the state of the weather are peculiarly favorable to its production, flowers generally secrete honey more plentifully than at other times.

I believe there are really two distinct kinds of honey dew; one nearly always present with us, produced by the busy pumping organs of the aphides; the other a spontaneous exudation from the leaves of the trees. Honey dew, when it prevails to any great extent, is produced by considerable heat and dryness of the atmosphere. Mr. Radcliffe is, however, right in supposing that cold cutting winds, preceding or alternating with hot weather, are favorable to its appearance. The plants become to a certain extent unhealthy, and consequently the leaves are more easily affected by what is, in truth, a disease—whether the honey dew is caused by aphides, or whether it be a natural exudation totally independent of them.

Dr. Bevan, the author of the "Honey Bee," says: "I believe it will be found that *there are at least two kinds of honey dew; the one a secretion from the surface of the leaf*, occasioned by one of the causes first alluded to; *the other a deposition from the body of the aphis.*" The italics are his own.

Erasmus Darwin and other naturalists have regarded honey dew as an exudation or secretion from the surface of those leaves upon which it is found, produced by some atmospheric stroke, which has injured their health. Dr. Evans and others have believed it to be a kind of vegetable perspiration, which the trees emit for their relief in sultry weather. Other writers assert that honey dew is an excrementitious matter voided by the aphides, and that it is never seen unattended by aphides.

From this latter assertion I must, with all deference to the opinion lately expressed by Mr. A. Thompson and others in the *Gardeners' Chronicle*, beg leave to dissent. Dr. Bevan's view on this subject is, I believe, essentially the correct one.

S. BEVAN FOX.

[For the American Bee Journal.]

Queen Raising and Artificial Swarming.

MR. EDITOR:—I have received so many good things in the BEE JOURNAL, that it seems wrong for me to keep silent any longer, and not contribute my "mite."

Improved beekeeping is yet in its infancy in this section, and improvements are being made so rapidly, that it is about all I can do to keep up with the teachings of the JOURNAL, to say nothing of making any faster advancement, or undertaking to *teach* your readers anything. However, I have a few ideas that I wish to lay before you, in order to get the opinions of some of the more learned and experienced apiarians respecting them.

First, then, in regard to *queen rearing.* It seems that every one who is fortunate enough to learn the art to perfection, is smart enough to keep it to himself, and profit all he can by his knowledge. Now I have devoured everything within my reach on this subject, as well as on beekeeping in general. And, after taking all the plans I could get hold of, and *boiling them down*, I have adopted the following, which I propose to put in practice next season. In the meantime, I lay it before your experienced

readers, hoping that they, one and all, will give their candid opinion of it through the JOURNAL. I cannot claim much originality, for this plan was picked up, a little here and a little there. Let them correct and revise it all they can; or if necessary reject it altogether, providing they give us a better one.

In the first place, our frames are about fifteen inches by eleven, inside measure; with eight frames to each hive. I now have constructed for one of these hives thirty-two small frames, seven and a half inches by five and a half, inside measure. Four of these are now placed into each of the large frames of one hive, and filled with worker comb, which I transferred from an old box hive this summer.

My only object in having these small frames fitted into the large ones in this manner, is simply to winter bees in them successfully. I propose to take these small frames out of the large ones next spring, and place them in two rows, side by side, having sixteen frames in each row, in a low hive made to receive them in that manner. This is to contain a full swarm of bees, and a prolific queen. I will then make choice of three strong colonies for constructing queen cells. Supposing No. 1 to contain the queen from which I wish to breed, as soon as practicable in the spring, I will remove the queen from No. 2, using her to form an artificial colony. I will then take the queen from No. 1, and put her in No. 2. The bees in No. 1 will now proceed to construct a large number of queen cells. In about one week, I will take the queen from No. 3, using her as I did the one from No. 2. Then take the breeding queen from No. 2, and introduce her into No. 3; whereupon the occupants of No. 2 will also proceed to construct cells, as did No. 1, and from eggs laid by the same queen.

By this time the cells in No. 1 will be ready for removal. I will now have ready some nucleus boxes of a size just sufficient to contain three of the small frames. Take the frames from their hives, together with a sufficient quantity of adhering bees, honey, and sealed brood. In this way the hive containing the small frames is made to furnish bees, brood, and combs for a dozen nuclei, if broken up for that purpose; if not, a small portion may be taken at a time, filling their place with duplicate frames containing worker comb—thus forming a still larger number, but consuming more time. Into each of these nucleus boxes, I will now insert a sealed queen cell, confine the bees in them for a few days, and in due time each nucleus will contain a queen. I am confident that it would be a paying business for every bee-keeper having a considerable number of stocks, to keep on hand at all times a supply of *reserve queens*. For directions for keeping your supernumerary queens, see AMERICAN BEE JOURNAL, September, 1868, page 45.

I have also a plan for keeping reserve queens at a very small expense, and with but little trouble, which I may give you in another article.

It is unnecessary, at the present day, to dwell upon the advantages of *artificial swarming;* but the manner in which it is performed by many, may, I think, yet be improved. I wish therefore to present a few remarks on this subject, as it is of vital importance that every one who attempts to perform this operation should thoroughly understand his business. I have before now followed to the letter methods presented by persons who have their names before the bee-keeping world as learned and reliable men and *women*, and I have been greatly disappointed at times, by making a grand failure of the whole thing! For instance, I was directed, in a very pretty article by Mrs. Tupper (and I have since seen the plan recommended by others) to take, I think, *two* full frames from the hive, place them in an empty hive, fill out with empty frames, and set this on the old stand. This of course is to contain the old queen. Then remove the old hive to a *new stand* in the apiary. I never tried this but *twice*, and will never try it again. It may work satisfactorily for others, but it did not for me. In the first instance, the bees so nearly all left the hive removed, that the moth worms came near spoiling it; and in the second instance, the hive had so few bees left a few days after being removed, that I had to change places with another—a strong stock—in order to equalize them. This is what I should have done at first, when practising this method.

I fully believe in the system of *reserve queens*. I think that any method of artificial swarming which compels them to raise a queen, after being divided, *is all* wrong. Still, if we make swarms *early*, we cannot *always* have a queen on hand. A plan, which I prefer to the above, is to take a stock and divide it equally—that is, to take out one-half of the bees and combs, and put them in another hive. Then put in one or two empty frames and adjust the division board until they need more room. Notice, if convenient, into which hive the queen is put; but if you cannot readily see her, no matter. You can open them the next morning, and quickly ascertain which division she is in, as the queenless one will have commenced building queen cells. Now introduce a fertile queen in the queenless part; set them side by side on the old stand, with not too much room at first, and you are all right. If you have no spare queens at command, give the queenless part about five frames filled with brood and eggs, and adjust the division board to the five frames, giving no empty frames for at least a week. About the time the young queen hatches, exchange some of the frames with those of another hive containing sealed brood—thus keeping up their numbers until the queen commences laying. The adjustable division board I consider a very important part of *any* hive, and a hive without it, is by no means complete. The hive I use I can readily adjust to the capacity of from *one* to *twenty-four* frames, thus adapting it to the size of any swarm.

Two frames of comb, with a good queen and bees enough *to cover them*, makes a *strong swarm*, if placed in a hive with but little spare room; but if placed in a full sized hive, they will do comparatively little. This is the secret of building up artificial swarms.

Now one word, if you please, in regard to

patent hives. If I rightly understand it, the principal point covered by patent in the Langstroth hive, is *space*. Take that *space* and exhaust the *air*, and there is *nothing* left. Consequently Mr. Langstroth has either patented *air* or *nothing*. If it is *air*, we must have that, even if we do have to pay fifty cents a hive for it!

But, Mr. Editor, I fear you are getting tired of this, and besides I have exhausted all my *space*, and I do not suppose I can get any more, as Mr. L. *has got it all patented!*

J. F. TILLINGHAST.

FACTORYVILLE, PA., Aug. 20, 1869.

[For the American Bee Journal.]

Superstitions.

In October, 1841, my father died. At that time he had five swarms of bees. At the funeral, I was told that I must certainly inform the bees that their master was dead, or, which would answer the purpose as well, dress each hive with some of the crape worn by the mourners, or the bees would all desert their hives; or, if they did not desert, they certainly would never work any more.

At that time I lived at a mill, three and a half miles from home. Father was at the mill when he received his death wound. I went home with him, and remained with him until his death. He died in three days after receiving his wound by an accident. I tipped up each hive, and the bees were all there, and as I supposed in excellent condition, three days before the funeral. Of course I did not inform the bees or dress the hives in mourning, for I never was superstitious, and paid no further attention to what was said on the subject. However, on the third day after the funeral I was home, and of course went to look at the bees, and every bee was gone—neither a live or a dead one was left! The condition of the hives was this, every comb was filled with sealed honey from top to bottom, scarcely an empty cell being left. Obviously the superstitous ones had the advantage of me then, for at that time I could not account, on rational grounds, for the desertion of the bees. But, since, I have had bees desert at different times, in the fall, and go into other hives. When their hives are completely filled with honey, if the bees do not desert them, they will all perish as soon as the weather gets cold enough.

You need not ask me whether I believe in *luck* or in any superstitions about bees, for I do not. I believe that everything relating to them can be satisfactorily explained, when well understood. One day, this summer, I made a dozen artificial swarms for different individuals. On the third day after making them, the thermometer went up to 110° F. in the shade, and two of the said swarms deserted their hives, one of which belonged to Mr. B. C. Whitacre. The first time I saw him after the occurrence, he said: "Well, Gallup, you need not tell me there is nothing in luck. I tell you it is just my luck!" Now, friend Whitacre, if you had ventilated your hive properly, or shaded it well, or, if you could not have thus kept them cool enough, sprinkled the outside of the hive with cold water, or covered it with wet cloths during such extreme heat, the bees would have staid. Your luck would have been changed simply by knowing how to manage. We have good seasons and bad seasons for honey, and that is all the luck in bee-keeping. Everything else consists in knowing how to do the right thing, and doing it at the right time.

The superstitious folks have all sorts of queer questions to ask, and among them often some as simple and as silly as any you could possibly imagine. Of this kind was the following put to me seriously one day: "Do you believe that a person can keep bees, or have any luck with them, when man and wife quarrel or are at loggerheads all the time?" The same person said: "I should like to keep bees, and have bought swarms at different times, but never had any luck." I advised him, of course, to stop quarreling with his wife, try his luck again, and above all all things subscribe for and carefully read the BEE JOURNAL.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

Wintering Bees in Canada.

There seems to be such a diversity of opinion in regard to wintering bees, that a novice without experience might be at a loss which method to adopt. My opinion is that, for all high latitudes, or in latitudes where the mercury sinks to 20° below zero, and downwards, a special repository, either wholly or partially under ground, is the proper place for them. If those beekeepers who, after repeated failures, are still anxious to know how they can winter their bees successfully, will construct a cellar as described by Mr. J. H. Thomas, in the June number of the BEE JOURNAL, they may, as he says, "put in their bees, lock the door, and go about their business."

Last fall I prepared such a receptacle, only on a smaller scale and without the *cement floor*—the want of which served partially as a basis for the following experience in UPWARD VENTILATION.

My cellar is six and a half feet broad by eighteen and a half feet long, and about seven and a half feet high in the centre; and being on a hill-side, I did not expect to be troubled with water, but to be safe, I dug a drain.

I put my bees in about the first week in November. First, I placed a row of hives on one side of the cellar, sliding the honey boards about one and a half inches forward, and removing the slats which cover the entrances to the honey boxes. The entrances of the hives were also left open. The cellar was ventilated in the roof by a box or tube four inches by six; and near the ground by the drain four inches by four. I shall give additional ventilation this

year, and so arranged that I can regulate it at pleasure. At first I was afraid that I had given the movable comb hives too much ventilation; but the result will show that I did right.

I visited them every two weeks. Soon after I put them in, I began to see that my cellar was too damp. Mould began to collect on the walls, dead bees, and damp places on the roof; but I could give them no more ventilation without giving them light also. I examined a few honey boards and found the under sides covered with large drops of water, which I thought at the time indicated a bad condition. After this I felt anxious as to the final result of it all. But the worst had not yet come, for on going to examine them one day about the middle of March, after a thaw, I found a stream of water issuing from the drain, and the bottom of the cellar covered to the depth of one or two inches. Now, I thought, my bees are "gone up" surely. I could not take them out until the 15th of April; and before this they had become quite restless from the high temperature of the cellar. When I took them out, however, instead of finding them a rotten mass in each hive, such as one might expect would be produced by so much heat and moisture, I found only *two* mouldy combs in sixteen movable frame hives; while a few old box hives, to which I could give but little upward ventilation, contained considerable mouldy comb.

All my hives, but one, contained brood in all stages and plenty of bees and honey. Not a hive was lost out of fifty-five, which included some of my neighbors'. My opinion is that they could not have been wintered better, and be in normal condition. Now I believe the whole matter of ventilation is this: If bees are wintered in a damp cellar, give plenty of upward ventilation.

This season has been quite unfavorable for bee-keepers here, who depend on surplus honey for profit. The weather was rainy and cloudy the greater part of the summer; and the bees lost nearly all the clover season. Yet, notwithstanding the bad season, I have increased my stocks from twenty to sixty-one, both by natural and artificial swarming; and I shall have about four hundred pounds of surplus honey. I have practiced three methods of artificial swarming, and shall practice artificial swarming exclusively next year.

I use movable comb hives, thirteen and a half inches by sixteen, inside measurement, and ten inches deep—"the shallow things!" I like them so well that I intend to make one hundred of them for next summer's use.

Don't you think, Mr. Editor, that tight-fitting frames and movable top bars show a retrograde movement? ("Pitch in," but quietly, friends Hastings and Benedict.) What do you think, Elisha? For my part I am sorry to see any person trying to do away with frames.

GEORGE CORK.

BLOOMFIELD, ONTARIO, CANADA, September 2, 1869.

Artificial operations of all kinds are most successful when bee-forage is abundant.

[For the American Bee Journal]

From Canada.

WINTERING BEES; AND A WINTERING HOUSE.

MR. EDITOR:—I have been an attentive reader of your valuable paper for the past three years, and have been much profited by the information received, through its columns, from your many obliging correspondents. I often think what an improvement it would make in the agricultural papers if farmers were a little more communicative and obliging to each other; in short, if they would follow the example of the apiarians, in this respect, their papers would not be so dry and tasteless as they frequently are.

As it is now approaching winter, perhaps there is nothing I could say that would be more interesting than to describe a wintering house that I have in course of erection for my bees. There is nothing more important, after all, than to be able to keep our bees in good condition through the winter; and on this particular point I feel myself weak. I still require information, and I fear there are many others like myself in this respect.

Some advise wintering on their summer stands; some in cellars; and some say bury in the snow, or in the sand, or in a clamp; while others say, build a house above ground expressly for the purpose. All may be right, and doubtless are in their special locality, as the climate varies much in the territory over which the JOURNAL circulates. This may, in some measure, account for the different opinions expressed. I have tried nearly all the plans above enumerated, and have found serious objections to nearly all of them. This winter I propose to winter my bees in a repository above ground, built on purpose. My objection to cellars is, they are frequently too damp, and it is difficult to move the hives down and up; and the bees are liable to be disturbed frequently by persons going down for potatoes, apples, &c. I have tried wintering in a clamp or pit. I find that, in that way, the bees eat less, but the combs come out mouldy, and sometimes worthless. Wintering on the summer stands requires more honey, nearly twice as much, as the bees are roused to activity every fine day; and a great many are lost in the snow, while many others are frozen stiff in the hive during long-continued cold weather. Besides being hazardous, it looks careless, to winter thus.

The house I am building is 12½ feet by 14½; sills raised on posts 8 inches from the ground. The lower joists are 2 by 10 inches, and run lengthwise. The centre ones are 1 inch lower than the sills. A rough floor is laid on the under side, then filled with saw-dust to the top of the joists. I have a double inch floor on the top. The floor is cut in two in the centre and the two parts do not meet by one inch, which opening will answer the double purpose of winter ventilation and as a vent to let water off from snow that I intend to pile in towards

spring, (in a small hall, to be left in the centre) in order to lower the temperature when the cold begins to moderate.

The frame is put up with 2 x 10 scantling, weather-boarded and battened on the outside, and lined on the inside. The hollow wall all filled up with saw-dust. The joists above are 2 x 8, lined on the under side, and 8 inches of saw-dust laid on top, through which an upward ventilator passes, reaching from the ceiling up through the roof of the house, and having at bottom a regulating valve. I have a small window in one end, with glass, and also blinds on both inside and outside; a double door, one on each side of frame, and in the winter a straw mattress will be placed between the doors.

Now, Mr. Editor, if any of the friends can suggest any improvement on the above plan, I would feel obliged.

I propose, in summer, to use the house for working my honey machine in, or for storing honey, or any other work connected with bees in summer. I have seventy swarms, and one hundred can be stored away in this house, if in Thomas' hive, (and by the way that is the best hive, and is all the go in Canada).

With us, the past season will, I think, prove to be the poorest we have had for some time. It has been just the reverse of last summer—that is, too wet and cold. I fear very little surplus honey will be obtained.

A. C. ATWOOD.

DUNCRIEFF, CANADA, Aug. 20, 1869.

[For the American Bee Journal.]

Size of Hives.

In answer to the inquiry of Mr. C. S. Paine, in the September number of the BEE JOURNAL, I will give my impressions as to the proper size of hives.

Many writers have suggested that the size of the hives should be proportionate to the pasturage of the district in which they are used; small sized hives being best adapted to poor honey countries, and larger hives for sections yielding honey more abundantly.

My opinion differs widely from these ideas; for I think, whatever be the honey-yielding quality of the country, the capacity of the hives should be in relative proportion to the fecundity of the queens.

I have ascertained that, in the height of the brooding season, the normal fecundity of a healthy prolific queen enables her to lay three thousand eggs daily, if she is supplied with empty worker comb. We know, also, that twenty-one or twenty-two days are required for the developement of the worker bee, from the time the egg is hatched until she leaves the cell. If we now multiply 3,000 by 22, we shall have 64,000 as the number of empty cells required for the accommodation of a queen ordinarily prolific.

But there is, besides, some room required in the combs for the provisions—honey and bee-bread; and if we allow 20,000 cells for this purpose, we shall have the area of 84,000 cells as the necessary room inside of the frames in movable comb hives.

Now every square inch contains fifty worker cells; and if we divide 84,000 by 50, we shall have 1,650 square inches, or somewhat more than 11 square feet on the total surface of all the combs in a good-sized hive. That surface is the same as that indicated as the proper size in the works of all good authors on bees—such as Langstroth, Quinby, &c. In order to ascertain whether so much room is necessary, let us compare the product of a hive holding 1,650 square inches, and that of another holding only 1,050; and let us suppose that each of these hives is stocked with 10,000 bees on the 1st of April. What will be the difference in the number of workers after the lapse of one month?

HIVE OF 1,050 SQUARE INCHES.

Population on the 1st of April.....	10,000	bees.
Hatching, 1,700 bees per day, for 30 days.....	51,000	"
	61,000	"
Deduct, for mortality, one-third.....	20,000	"
Population, on the 1st of May.....	41,000	"

HIVE OF 1,650 SQUARE INCHES.

Population on the 1st of April.....	10,000	bees.
Hatching, 2,500 bees per day, for 30 days.....	75,000	"
	85,000	"
Deduct, for mortality, one-third.....	28,000	"
Population on the 1st of May.....	57,000	"

Let it be noted that we have put the number of eggs in the 1,650 inch hive at only 2,500, instead of 3,000, the product, daily, of a very prolific queens.

But we know that while 10,000 bees gather one pound of honey, 20,000 will gather four pounds, and 30,000 nine pounds; for the increase is to be calculated by the square of the numbers. Now let us see what will be the probable difference between the weight of the honey gathered in one month by the bees of the two hives, supposed one pound is gathered by 10,000 bees in one month.

HIVE OF 1,050 SQUARE INCHES.

The product of the 4 ten thousand bees will be four times four pounds, or 16 pounds.

HIVE OF 1,650 SQUARE INCHES.

The product of the 5 ten thousand and 7,000 bees will be 5 ten 7-10 by 5 pounds, or 32 pounds 49-100.

The probable difference should be 16 pounds 49-100, in favor of the larger hive, the product of which will be double that of the smaller one.

We know to-day, by experience, that the larger the hive the greater the product; but the large hive should be provided with a division board to adapt the space to the strength of the colony.

CH. DADANT.

HAMILTON, ILLS.

The bee moth is the only insect known to feed on wax.

[For the American Bee Journal.]

Queens Mating Twice.

MR. EDITOR:—Several correspondents have given instances of queens mating with drones two or three times. Now, I have no doubt but that queens do mate with drones more than once; In fact, I know that they do. But that they are fertilized, or partially fertilized, more than once, I do not believe. In the first place, it must be admitted to be contrary to nature. I have had several queens go out and mate with drones twice; but they were not fertilized the first time. Had they been, they would not have left the hive the second time for that purpose.

I have made queen rearing my *only* business during the hot weather, for several years, and have reared hundreds of them (about six hundred this season); and I am satisfied that not over one queen in one hundred ever mates with a drone more than once. And I am as well satisfied, also, that they are fertilized but once.

I usually examine my hives that have young queens on the fifth day, to see whether they have been fertilized; and I do this soon after they have been out. If they have been fertilized, the proof of it will be seen adhering to the queen for hours after; and in one case I had to kill a queen after she had retained it over a week. When the queen has met the drone and is fertilized, the bees cannot remove it, as they did in Mr. Hill's case; but where they meet the drone and are not fertilized, the bees seem to know it, and will pull it away. If then the next day is pleasant, such queen will go out again, and will almost certainly be fertilized.

H. ALLEY.

WENHAM, MASS.

[For the American Bee Journal.]

Queens Mating Twice.

MR. EDITOR:—I am aware that the above subject has been somewhat ventilated in the columns of the "JOURNAL," but as yet it is far from being exhausted, and I once more indite a few lines in defense of the side of this *important* topic which I have heretofore taken. And let me say here that, whenever I have used, or may use, the word *mate*, I use it *only* in the sense of copulation resulting in impregnation.

There are parties who take the affirmative of this question, who would have us believe that the spermatheca of the queen, like the inexhaustible bottle of the conjurer, is full of partitions, well defined and separate, each containing the seminal fluid of one of the different drones cohabited with, so that by her own will she can at pleasure fertilize the eggs laid, with the semen of one or any of these drones—thus producing either *pure* Italians or pure *blacks*, as the case may be.

This *theory* is certainly new, and is so far contrary to the recognized laws of reproduction, that I must, in the absence of facts, be considered on the doubting side; and I would say to Mr. Davis that I do not see what *facts* he can bring to prove his position, if he relies wholly on the queen mentioned on page 140, volume 4; for he himself says she only mated with black drones, consequently *her* progeny in no case could have been pure Italians, even if his proposition is true.

I will state a few facts. First, so far as I can learn, there never has been an instance where a *fertile* queen has left the hive on an amatory excursion. Second, *Italian queens* mated with *black drones* produce all the phenomena claimed by the affirmative. Third, there is not a case to be shown where a queen raised from an Italian queen mated with a black drone, showed in her progeny any evidence that she was pure. Fourth, the laws of reproduction are invariable, and crossing of broods must either improve or deteriorate, as half breeds can never again be made pure; return to the original stock again after once crossing, and though you breed "to all eternity," there will be a dash of impure blood remaining. This law as much applies to the worker progeny of the Apis, as to any other form of creation. Consequently it would be impossible for an Italian queen, mated with a black drone, to produce any *worker* progeny which was anything but hybrid; no matter whether such progeny has three bands or not. It is not by the bands of any one bee that we decide the purity of the mother; but the whole progeny is examined, and if a single bee native to the hive is found wanting a band, the evidence is certain that the mother is impure.

This subject is one to which I have given considerable time and study; and deeming it of the utmost importance in bee-culture, I have taken strong ground, and while I do not court criticism, I still expect it, and trust I shall bear it patiently, hoping that good will result from it. In the present state of apicultural science, it will be very easy to *prove* conclusively many of the points of theory which have been advanced on this question; and we all know that unproved and non-practical theories have been the bane of bee-keeping in ages past. Let us (the readers of the BEE JOURNAL) see to it that we are not misled by such in future.

If the doctrine above mentioned is true, it will be impossible to introduce and keep pure the Italian stock in this country, or in any other, where the black bee exists; for years must elapse, even under the most favorable circumstances, before all the drones within a radius of three miles of every apiary can be killed. And though you use the "Köhler" or any other system, it is all "knocked in the head" by some mistress queen, who sees fit to leave the hive at any unexpected moment; and the result soon shows itself.

Hoping this subject may be thoroughly canvassed, in good temper, and completely exhausted by abler heads than mine, I am,

Yours truly,

J. E. POND, JR.

FOXBORO', MASS., Sept., 1869.

Nearly forty pounds of honey will be ordinarily used by a new swarm in filling their hive with combs.

[For the American Bee Journal.]

Alsike Clover in Second Bloom.

MR. EDITOR:—Mr. Tillinghast, of Pennsylvania, desires to know what honey-producing plants will best fill the vacancy between mid-July and mid-August.

I have taken some pains, during the last three years, to test mustard, cleome, borage, melilot clover, and several other plants, and would decidedly give the preference to the melilot, if it were of any other use than just as bee-pasturage and to enrich the land.

If a piece of rich land were sown, late in the fall, with an even mixture of cleome and melilot seed, it would furnish excellent pasture for the two following years, far more than filling the vacancy referred to; and then, if plowed under in the third fall, would leave the land very much richer—and if improvement of the land was desired, it might be a very profitable investment to a bee-keeper.

Melilot, in good soil, might yield in the second year, an amazing quantity of sweet flowers. I have it now seven feet high, and covered with flowers from the bottom up. It should be understood that the "*cleome integrifolia*" is an annual, and the "*melilotus leucantha*" a biennial. Hence the propriety of mixing the seed, to get a crop the first year.

But, all things considered, "alsike clover" will be found by far the most profitable, and can be managed to cover the period mentioned by Mr. Tillinghast. If pastured until early in June, or mowed just when it is coming into blossom the first time, it will bloom largely the second time. At least mine has done so this year. I have near my barn a choice piece, a part of which was mown on the 22d of June, and turned up a good swath, with few blossoms; and the remainder was mown on the 30th of June, when in full blossom. The first part began to bloom again in about ten days, and has increased in the number of blossoms until the present time, (September 10th). The later cut was longer coming into second blossom, and did not bloom so fully; yet it is quite nice.

I should remark, however, that this was a wet season with us, and that suits the alsike. This clover should be sown with wheat in the spring, on good ground, about five pounds of clean seed to the acre. Or, if for general farm purposes, I prefer mixing timothy and red clover seed with it. Cattle like it exceedingly.

J. W. TRUESDELL.

WARWICK, P. Q., CANADA.

The more I learn, the more clearly I perceive how much more, both in theory and practice, remains to be learned; and that in reality man never gets done learning.—DZIERZON.

Combs having no brood, may be smoked with the fumes of burning sulphur, to kill the eggs or worms of the moth.

[For the American Bee Journal.]

Novice.

MR. EDITOR, AND ALL THE READERS OF THE BEE JOURNAL:—When we last wrote you (July 5th) we mentioned that we had made twenty-five swarms on our new plan, and as the honey seemed to slack off about the last week in July, as it usually does here, we must confess that we began to think that bees, for 1869, were not quite up to our anticipations, and we were almost inclined to feel a little discouraged. But as we are natually hopeful, we soon began to think that perhaps just this season might be an exception to our previous experience, and that we might have a yield of honey in August, as they do in some other localities; or that something unusual would turn up in our favor; or rather, that *we could turn something up*, as that is the way we usually have to do. Accordingly, we made daily visits to almost every hive, removed all weeds and grass, levelled things up plumb and square, and, in short, made everything as tidy and neat about the hives as we could.

By the way, Mr. Editor, you must allow us to stop long enough to tell you how we have our apiary arranged, We could never bear to see a straight close row of hives, and, as is too often the case, under some rickety old shed. So we commenced making separate stands, as Quinby recommends, viz: a broad square board, with a heavy piece of oak scantling across each end. (Empty pine boxes will often furnish very smooth nice boards for this purpose). And as the bees need shade, we have planted Concord grape vines, eight feet apart, each way, all over our apiary, and with a stand such as first mentioned, set on the north side of each vine, which is trained on a proper trellis, *a la* "Fuller on the Grape." Thus we think we have got something pretty nice. We can walk all around each hive, and when in a hurry can shake bees, queen, and all, on the ground almost anywhere in front of the hives, and they are sure to get in safe, provided the space is kept clean, as it should be; and this we accomplish partly by means of saw-dust, and more by hoeing up the weeds by main strength ourselves *individually*. We cannot *hire* any gardener to work among bee hives—"*No sir, ee.*"

Well, we got everything in the best shape we knew how, and watched as before mentioned for swarms in August; and sure enough, after about ten days rest, the bees began slowly to bring in honey and build combs again; and, in a few days more, some of the heaviest hives were about full. So we took combs out of the middle, and the more we took out, the faster they filled the empty frames. Pretty soon we had our thirty-five hives making a comb per week; and ten frames of honey and brood make a good swarm, lacking only a queen. Then, as the drones were not yet killed off, we started queen cells, which seemed to produce fine, yellow, laying queens in an unusual short time, and with a precision we were quite unaccustomed to. It was but a few days before the

swarms made with ten full frames became so filled that they assisted in supplying full frames for other new swarms, and so on. At that rate of progression how do you suppose we should have ended, had we not had another cessation of the honey crop about this date (September 10th)?

We have now forty-eight (48) hives full of bees and honey, and we should like *awfully* building combs, swarms, and queens up to a hundred, as we just begin to get our hand in; and now, especially, as Argo has got fifty-two (52). By the way, how in the world did he manage to do it? We think it looks like a tall operation to make forty-eight stocks from eleven; and so it is, to raise all nice yellow queens, as we have done.

Now for the facts in our case. The black bees have done nothing here, since the middle of July. The superiority of the Italians was never more apparent—as the black bees from our neighbors were continually trying to rob, while the Italians were so busy.

After the white clover had failed, we went to work to find where the honey came from. Part of it, we think, did this time really come from buckwheat; but, in the latter part of the day, they seemed to be working very busily in a certain direction, and the hives had a strong smell of something like humble bees' honey, which we thought *must be* from the red clover. To make a sure thing of it, we started off in the direction they went, to find it. After a long walk we did find some red clover, but not a bee on it. We searched further in that direction, and were forced to go home, finding nothing from which bees were getting honey. But the next day we saw them so busy again, until near dark, bringing both honey and pollen almost as white as snow. Then we resolved that we *would* unravel the mystery; and as we thought it might possibly be something from some forest tree, we went this time into the woods, and there the riddle was solved. A white flowering plant, growing from two to four feet high, we at first found sparingly, and then more and more plentifully, until further off, from one to two miles from the apiary, we found acres of it, and alive with little "yellow pets" as happy as the day is long, "from morn to dewy eve" bringing their heavy loads. As no one here seems to know the name of the plant, we send you a leaf and flowers inclosed in this. Any information as to what it is, would be a favor.*

Will you, Mr. Editor, or any one else, please tell us what you think of the following plan of wintering bees, here, in our open uncertain winters, when there may be summer weather in January, or the mercury below zero in March?

For instance:—take forty hives, with caps and honey boards off, pile them in two rows four feet long and five feet high, with the entrances turned outward, in the middle of the apiary. Put a good roof over all, board up the ends, and have the sides on hinges to open up during mild weather that the bees can fly, and so that they may be shut down in cold weather. So many colonies placed thus together would certainly keep warm even in very cold weather, and during a protracted warm spell the sides could be lifted up, or used as a ready means of ventilation at any time. Would not this secure nearly all the advantages of being in a cellar or a similar place; and at the same time, of wintering in the open air?

We do not like to try the experiment, until we have the opinion of some one who has had more experience than we have. A vehement determination not to lose the forty-eight swarms we have, if we can possibly help it, by wintering in a cellar; nor to have them weakened both in bees and honey, by the inclemency of "all out doors" (with the bars down), is our present "frame of mind."

And, as we lay down our pen, and prepare to go home because it is almost twelve o'clock and Saturday night, we make our best bow before closing the door, and wish all manner of success and happiness to both the Editor of the BEE JOURNAL and all its readers, from

NOVICE.

Sept. 11, 1869.

*We sent the leaf and flowers to Professor Porter, of La Fayette College, Easton, Pennsylvania, for identification, but have not yet received his reply.

[For the American Bee Journal.]

Another Suggestion.

MR. EDITOR:—I see some one has suggested the idea of a bee-keepers' photograph album with three yellow bands, for your gratification. Would it not be more appropriate to use one with *one* or *two* yellow bands, for the pictures of some of our Italian queen-raising brethren?

Allow me to suggest a sort of semi-fraternal bee-business directory. Few persons make apiculture a speciality, and I, (and I presume others) am often curious to know what *else* they do for pastime. Who has not wondered what "Gallup"* does? What is there in one's mental composition to cause "bee-on-the-brain?" Then, for the satisfaction of the mutually curious, let all correspondents send in their age, residence, vocation, and the extent to which they are interested in bees, and let the same be published in our most excellent AMERICAN BEE JOURNAL, with which we are well pleased.

J. W. GREENE.

CHILLICOTHE, Mo., July 15, 1869.

☞ We like our correspondent's suggestion; but think he should have set an example, by carrying out his idea fully in his own case, in his communication.

*Gallup is a hard-fisted, hard-working farmer, who earns and eats his bread "in the sweat of his face."

A colony that contemplates swarming never seems to be as active and industrious as its populousness would induce us to expect.—HOFMAN.

[For the American Bee Journal.]

Worker Bees in Drone Cells!

MR. EDITOR:—Early in July I put three frames of drone comb into a hive nine inches deep by five inches wide and twelve inches from front to rear. I also put in two pounds of bees and a very handsome queen, and gave them plenty of feed all the time, to make the queen lay, if I could. In a few days I examined them, and found an egg in nearly every cell. About the time for the drones to make their appearance, I looked at them, to see how they were getting along, and was greatly surprised to find, instead of drones, worker bees hatching from those drone cells. Not over fifty sealed drones could be found in the hive.

I let them work, and they still continue to rear worker bees in drone cells up to this day. The cells are sealed over even with the surface of the comb. Now I had supposed that, if eggs were deposited in drone cells, nothing but drones would hatch from them. At any rate, I shall not allow my bees to cheat me again in this way. I know how to fix them the next time.

Now, Mr. Editor, this experiment is something new to me; and I never saw anything of the kind noticed in print. Even our good friend Gallup never said anything about this thing, and I do not believe that he ever dreamed of anything of the kind. If any of the readers of the BEE JOURNAL ever saw anything similar, I wish they would report.

H. ALLEY.

WENHAM, MASS.

☞The case stated above by Mr. Alley, is of very rare occurrence, but not unprecedented. Gundelach, in his supplementary treatise of 1852, says that, on the 10th of August, 1851, he introduced a small driven swarm into a glass hive containing only a single comb, twelve inches square, composed of drone cells exclusively. The old colony from which this swarm was taken had been fed plentifully for a week previous, to keep the queen in egg-laying mood, as Mr. G. was curious to ascertain how she would act on finding herself restricted to a comb containing no worker cells. She seemed reluctant, in these circumstances, to resume laying, and did not do so until August 15, or after an interval of five days. On the 23d, the larvæ were sealed; and Mr. G. now became anxious to see whether the product would not be *uncommonly large workers*, as the cells had been closed with *flat* covers—the bees being evidently conscious that *workers*, and not *drones*, were being developed from the eggs. Compelled to leave home on the 5th of September, when none of the young had yet emerged, he opened a number of the cells, and found mature *workers* in them; and, in two instances, the inmates had already begun to cut their way out through the covers. These workers were examined very carefully, and not the slighest difference could be discerned between them and those reared in worker cells—they were not in any respect larger than ordinary workers.

Commenting on this case, in February, 1853, the Baron of Berlepsch suggests that, the determination of sex being the voluntary act of the queen, she can, if so disposed, lay worker eggs in drone cells, workers being still the product; but that *drone eggs are laid by a normal queen only when the colony contemplates swarming or designs to discard the old queen and rear a successor*—neither of which Mr. G.'s small colony can be supposed to have intended, and hence no drone eggs were laid or drones produced.—ED.

[For the American Bee Journal.

Wintering Bees on Chicken Meat!

A NEW THING UNDER THE SUN!

MR. EDITOR:—Perhaps I am wrong in thinking or writing as above, as possibly the matter is not new to others; but to me it is new, and it may not be without interest to some of your readers, who, like myself, never heard of such a thing before. For aught I know, a goodly number will say, when they read this article, just as I said when I first heard of it—"Pshaw, that's all *bosh!* I don't believe one word of it!" But, dear reader, just try it the coming winter, and then report through the BEE JOURNAL.

But, "what is it?" methinks I hear you ask. Well, that is just what I am going to tell you.

Some time last spring there was at our house a young man from Hungary, (and he came *hungry*, and tired too; but that is not what I am going to tell you). He seemed to be quite intelligent; could speak several different languages; and was a very pleasant and agreeable talker. At home, in Hungary, he was a lawyer, and came to this country, as he stated, to learn the English language and observe American ways and customs. While walking about in our yard,

> Turning this way, turning that,
> All the *premises* to explore,

he caught sight of my apiary, and coming into the house, asked what those things were, scattered around in the yard? I told him they were my bees in Langstroth hives. He made quite a *foh* at the idea of keeping bees *in such looking things!* Then he went on to tell about the kind of hive used in his country. He said his father kept a great many bees, "but not in such shallow unshapely things;" they were long and deep. He told also, among a great many other matters, how they kept their bees through the winter; and that is just what I am going to relate to your readers for their edification.

He said—and I quote his words, as nearly as I can remember them—"As soon in the fall as it is cold enough to keep the bees at home, we kill a chicken and cook it whole. Then we dip it in honey, and hang it by the legs in the hive among the bees. We close the hive, leaving room for ventilation; and let it remain thus, on the summer stand, during the winter. In the

spring, when the bees begin to fly, we take out *the bones of the chicken* from the hive, *the bees having eaten all the meat off!* Our stocks come out strong and healthy, and do not consume one-half the honey that those do which are not so fed with meat."

Now, I will warrant that nine hundred and ninety-nine out of every thousand who read this, will exclaim just as I did. But will not some one try this mode of wintering bees, and report success—*or failure?*

S. C. PALMER.

WINDHAM, OHIO, July 16, 1869.

☞A full account of this alleged Hungarian mode of provisioning bees for winter is contained in Lüttichau's "Suggestions for the improvement of Bee-culture in Saxony," which was published in Dresden, in 1778. Lüttichau is regarded by German apiarians as a kind of Munchhausen in bee-culture, and is commonly believed to have invented the story. But in this they probably do him injustice, as it is already given in detail in the "Transactions of the Economical Society of St. Petersburg," for 1776, and is there said to be the method employed by the Tartars, when, in unfavorable years, their bees have failed to lay up sufficient stores for the winter. It is also stated that the Tartars feed their bees with putrid fish in default of honey, and with the carcases of dead rats, mice, and other "such small deer."

Lüttichau likewise recommended feeding destitute bees with bread saturated with honey. This, he says, was formerly employed by the Hungarians, Poles, and Saxons, with great advantage—six or seven pounds of bread, thus prepared, sufficing to carry a populous colony safely through the winter, however poor in other stores it may be. But it would seem that he did not feed his own bees in this manner, for his servant Zschaller, who lived with him several years, says they were never so fed in that period. Heidenreich, who published his "Experiences and Opinions in Bee-culture," in 1796, states that he tested this honey-bread provisioning, with three colonies, in the fall and winter of 1778. The result was a complete failure—the bees dying before spring, and the hives being pervaded by dampness and mould. Others also, misled by Lüttichau's representations, tried it in 1783; but, as may be supposed, with no better success. We are not aware that any one, then or since, ventured to test the value of spring chickens as the "staff of life" in a bee community.—ED.

POLLEN gathered by the bees from the blossoms of sweet cherry and from those of currants, is orange color; gathered from those of celandine and veronica, it is cream-colored; pale green finch colored from those of plum and pear trees; yellow from maples and willows; bright yellow from butter-cups; saffron yellow from sour cherry trees, wall flowers, rape, sloe, and buckthorn.

The egg-laying of the queen is regulated and controlled by the will of the workers. When they want brood, they feed the queen liberally.

[For the American Bee Journal.]

Questions by Querist. No. 7.

QUERIST is still alive and reads the BEE JOURNAL as much as ever; in fact every article is faithfully read. He desires to thank those who have been kind enough to try their pens at answering his questions in No. 6; but regrets that some of those questions are misunderstood. Henceforth he will try to be more explicit, so that there may be no more mistakes.

On page 55, volume 5, may be found this statement: "The first and highest law of nature in insects, is self-preservation in caring for offspring. The honey bee seems to be endowed with this instinctive impulse, for the purpose of preserving the brood in the hive." Now, is this statement correct? If the preservation of the *offspring* is the strongest instinct that governs the honey bee, then why does she remove unsealed larvæ from the cells, to make room for a rich harvest of honey? Mr. Otis, of Wisconsin, claims that the strongest instinct that controls the working bees is the *love of storing honey*. So it seems that the position taken by Mr. Seay is at variance with that of Mr. Otis, and one or the other must from necessity be in the wrong. Again, is it not a fact that, at times, the self-preservation of the matured bees, is far stronger than the love of offspring? Witness, for instance, the destruction of *drone* larvæ during a dearth in the honey harvest.

Mr. Seay has much to say about brood chilling. Where Querist lives, sealed brood is not very likely to chill during June and July—the swarming months; and but few bees are necessary to keep it at the proper temperature to mature.

On page 56, same volume, I find this:—"All artificial swarms should have their swarming propensity excited at the time they are being made. When that is done, and the combs are properly arranged in the hive, there remains no other reason why an artificial swarm will not gather as much honey, and build as much comb, in any given time, as a natural swarm." Whether there be any other reason or not, it is nevertheless a fact that, *during the first week*, an artificial swarm located in an empty hive, will not gather as much honey, nor build as much comb, as a natural swarm. Several attempts have been made by the JOURNAL correspondents to give the solution of this problem; but none has, thus far, given one that is satisfactory. There are those among the JOURNAL writers who can give the solution, and on this account the question is still open for discussion.

On page 57, Mr. Nesbit says that he guarantees all the Italian queens he sells, and notifies his customers that if they fail at any time to produce workers with *three* yellow bands, that he will replace the queen free of charge. The object of making this extract is not to find fault with friend Nesbit, nor to be personal; but to make an inquiry. The present standard of purity of Italian bees is the three *yellow* stripes on the worker progeny; but is that a proper

test? Suppose, friend Nesbit, you should raise a hundred Italian queens, and all should produce workers thus marked, how many of those queens would *you* be willing to use for *queen-breeding* purposes? Would *ten*, yea say *five*, of those hundred queens be satisfactory to yourself? Querist desires to call special attention to this matter, as he observes that several parties are offering *pure (?)* Italian queens *by the quantity* at knock-down prices. The uninitiated will begin to think that *Simom Pure* Italian queens can soon be bought by the bushel, same as potatoes, beans, pumpkins, &c. More anon.

QUERIST.

[For the American Bee Journal.]

Observations and Experience.

MR. EDITOR:—Having been a bee-keeper upwards of twenty years, though not very extensively in the business, I have been using the common box hive or linn gum, until within the last three years, when I introduced the Langstroth hive. I like that hive about as well as any I ever handled, except the National Hive, patented by Owen Davis, July 7, 1868. I have handled different patent hives, and find they all could bear a little improvement.

From my experience, I shall not say much at present about practical bee-keeping; though I will say a little in regard to the two races of bees. I have handled a great many bees this summer; and through the month of June I found the black bees almost entirely destitute of honey, and with scarcely any unhatched brood. In fact most of the black queens had quit depositing eggs, and I knew several colonies to die of starvation about the last days of June. Mine being all Italian bees, thirty hives in number, and being from home myself at this time, I became anxious to know their condition. As soon as I returned I examined my hives, and was surprised to find them all well stored with honey and in fine condition, plenty of eggs and hatched larvæ, and thousands of sealed brood. When the honey harvest set in now, my bees were ready for the rush of honey, and they made good use of it. I had several colonies that gathered ten pounds, per day, for ten days in succession. Right in the height of that harvest, we had a powerful rain. It rained for a week every day, which was a great drawback to the bees.

My bees filled the lower part of their hives, and a number of top boxes, while those of my neighbors did nothing in the boxes; and yet I have raised quite a number of queens this season, and had to draw on all my hives, to keep my nuclei strong. Still they kept up finely; and while the black bees killed off their drones, the Italians did not.

I have been reading the BEE JOURNAL several years, and watching other men's movements, and will give my experience in practical bee-keeping more fully in a future article.

JAMES W. SEAY.

MONROE, IOWA.

[For the American Bee Journal.]

Removing Queen Cells no Preventive of Swarming.

DEAR JOURNAL:—I thought it was a fixed fact that if we examined our colonies of bees every eight days, and cut out all queen cells, that it would prevent swarming. Such, however, does not seem to be the case, as I tried it this season and failed.

I had a nice colony of Italians, which I got from Mr. Thomas, of Brooklin, Ontario, and I wished to see how many pounds of surplus honey I would get from them by preventing them from swarming. Myself and Mr. George Charles examined this colony every week, and cut out all the queen cells. Last Friday (23d) we cut out all therein, (seven in number), and, to our suprise, yesterday a large swarm issued. After hiving the swarm we examined the old colony, and found five queen cells just started, with an egg in each—queen gone. Can you account for this, or is it a common occurrence?

A. MALONE.

GARDEN ISLAND, KINGSTON, CANADA, July 26, 1869.

REMARKABLE ACCIDENT—*Disastrous Effects.* A letter received at Louisville, from Princeton, Kentucky, speaks of a fearful accident which occurred on the 20th. A man named Boot Crow was hauling upon a wagon two immense millstones, one which weighed 2,850 pounds. While passing along the side of a high hill the heaviest stone rolled from the wagon and down the declivity with a fearful velocity, crushing small trees and shrubbery in its course. The house of a farmer, named Darwell, was situated at the foot of the hill. The millstone went crushing through a fence and into the yard at the farmer's house, where were a number of bee hives. In the yard were playing a bevy of children. The bee hives were upset, and in the confusion the bees lighted upon the children, stinging every one of them in a frightful manner. The progress of the great stone was not impeded in the least by its collision with the hives, and went bounding into a stock pasture beyond the house. It dashed into a herd of calves and horses, killing two of the former and one of the latter almost instantly. The children in the yard had been completely covered with the bees, and each one was stung by them until their persons were entirely covered with white swellings. One of them died a few hours after the terrible occurrence, and two others are entirely speechless and blind. They can hardly recover.

Those who suppose that, when a swarm issues, the new colony consists wholly of young bees, forced to emigrate by the older ones, if they closely examine the new swarm, will find that while some have the ragged wings of age, others are so young as to be hardly able to fly. —LANGSTROTH.

THE AMERICAN BEE JOURNAL.

WASHINGTON, OCTOBER, 1869.

We had prepared, for this number, a translation of the certificates issued by the Committee appointed by the Salzgitter Apiarian Association, to test Mr. Lambrecht's ability to cause and cure foulbrood in a colony of bees, together with a more detailed statement of the action of the Committee, from the pen of one of its members; but want of room compels us to defer the publication of it until next month. It may suffice for the present to say that Mr. Lambrecht executed his assumed task to the satisfaction of the Committee; though we learn that some others, and among them several eminent apiarians, have expressed a doubt whether a fair test case had been made up, and hence claim that the result cannot be regarded as conclusive. Our readers will judge for themselves on reviewing the proceedings.

☞Since the communication from NOVICE, in this number, went to press, we have received from Professor Porter a reply to our inquiry for the name of the plant on the blossoms of which Novice's bees have been found foraging. The Professor says it is "the *Eupatorium ageratoides* L., (white snake root). It abounds in rocky woods and hills throughout the United States, and blooms most profusely in the autumn. The odor of the flowers somewhat resembles that of buckwheat blossoms. To me it is not specially agreeable; but, if the honey-gatherers get a good supply of honey and pollen from them, we must not find fault. I have never observed the bees working on them; and, in the case referred to, they may have been driven to it by necessity. Still, they exhibit no little caprice, or perhaps instinct; for the same flowers may not in all seasons and in all localities produce the same amount of honey."

May not this be one of the plants neglected by the common black bees, but resorted to with splendid results by the Italians? The latter have this summer, almost everywhere, where pasturage—in the usual acceptation of the term—was apparently very scarce, displayed a wonderful superiority over the former in gathering and garnering stores. This surprising result may possibly have arisen from their ability to resort to and derive supplies from some—perhaps from many—varieties of plants whose sweets are either inaccessible to or have no attraction for their shorter-tongued or less keen-scented cousins—though these have the probably undeserved reputation of being *universal* pillagers that

"Make boot upon the summer's velvet buds,"

and gather honey all the day from *every* opening flower.

We would suggest to those who, in preparing their bees for wintering, have occasion to use a solution of sugar or sugar syrup as a substitute for honey, to mix with it a small portion of pure glycerine, to keep this feed from candying in the cells. As it does not evaporate or dry, we think it would have that effect, and thus prove beneficial in protracted winters. In Germany, where glycerine, as a by-product in the arts, is sold at a low price, it is largely used as bee feed, without any admixture; and it may therefore be regarded as a safe addition, when feeding must be resorted to, though it cannot, in this country, on the score of cheapness, come in commercial competition with sugar or other substitutes for honey.

We have received a copy of the recently published "ANNALS OF BEE-CULTURE," for 1869, edited by D. L. Adair, of Hawesville, Kentucky. It contains about twenty articles, carefully prepared by American apiarians and naturalists, and conveying much useful and interesting information, which cannot but be of service to those engaged, or intending to engage, in bee-culture. The publication is designed to be an annual—this being the first of the series, and will yearly present, in a compact form, a general view of progress and improvement in this department of rural economy. May it be adequately supported.

The "*Society for the Promotion of Bee Culture*," on the Lower Rhine, Prussia, have had in operation for three years past, an arrangement to give a course of instruction in the theory and practice of bee culture, gratuitously, every summer. Lectures on the general subject, and lessons in manipulation, are given daily. The course continues two weeks, and at the close, a public examination of those who attend takes place, premiums are conferred, and prizes are distributed by lot. The object is to excite in the community a more general interest in bee culture; to induce the formation of a model apiary in every parish; and to provide competent persons to take charge of them.

Correspondence of the Bee Journal.

COUNCIL BLUFFS, IOWA, Aug. 22.—My bees are at work on sunflowers again this fall, and are making more honey than I ever knew before in my life. I had a swarm come off on the 12th of August, and on the 21st I opened the hive and found every frame filled with honey and brood. This is a half-blood stock. My half-bloods have done better than the black bees, or the full blood Italians. Mr. Gallup thinks the hybrids are no better than the black bees. Perhaps he has some queens to sell. I got three swarms from one hybrid stock this season. The old stock and the two swarms filled one set of boxes, and the second set over one-half full. The third swarm is the one above mentioned. My hives are the Langstroth hive with three boxes, each holding eleven pounds of honey. I think that is pretty good for one colony in one season. From my other stocks, that only swarmed once, I have taken off fifty-eight pounds of honey each; and I think they will make fifty pounds more before the fall flowers are gone. The sunflower has been in bloom for two weeks, and my bees have filled some of their boxes in that time. We find it a very good article of honey. Last year the honey was strong, and we thought the sunflower was the cause of its rank taste.

We have some old fogies here that are in the bee business, but do not take your JOURNAL, though they borrow it of me, and are always in a hurry to see it, so that I have barely time to read it through. So I think when they read this, they will perhaps send for copies for themselves.—H. FAUL.

OSAGE, IOWA, Aug. 28.—My bees are doing well, and have been since the 8th of this month; that is, all stocks that were in a condition to do anything. I was from home on business frequently, and thus several swarms became so reduced in the period of scarcity, that I hardly think they will get in condition to winter.

When I have leisure I must give the readers of the JOURNAL a history of the season for bee-keeping. Any number of swarms perished here, between the 20th of June and the 20th of July; and many more became so reduced that they are entirely worthless. And what is curious, nearly every bee-keeper calls it *foul-brood*. One would imagine, from the local papers and talk in the country, that Iowa is a terrible region for foulbrood; and yet I have never seen a case of real foulbrood in all my experience.—E. GALLUP.

FULTON, ILLS., Aug. 30.—Bees are storing honey more rapidly here at present than I have ever seen them do before. I have one swarm storing in extra frames on the top, which I empty with the machine. It has, for the last two weeks, averaged five pounds per day of strained honey.

Bees are swarming here, now, as much as they did in June and July. Even hives that swarmed once already, in those months, are swarming again; and the swarms are larger than they were in June. Besides there is no end to wild flowers, and we shall get a good yield yet for the season, if fine weather holds for three weeks longer.—R. R. MURPHY.

WILFRID, ONTARIO, CANADA, Sept. 1.—This has been a poor season here for honey, but a good one for swarming; the yield of honey being just enough to keep the bees breeding and swarming all summer. From eight stocks that I had last spring, I hived twenty-four swarms, besides three sent back. I had a young stock cast a swarm, and on the eighth day I cut out the queen cells. On the twelfth day I introduced an Italian queen, at the entrance, in a wire cage with a cotton rag tied over the ends, and the bees liberated her the next day. I paid no further attention to them until the twenty-second day, (after the swarm came off,) when I observed them swarming again. I then opened the hive to see what was wrong, and found eggs and brood from the introduced queen; and, moreover, a queen cell with a living queen in it, from the old queen that left with the swarm twenty-one full days before. The queen in the cell was a small one, though not smaller than some others that I have. There can be no mistake about the time, for I have the dates noted of every transaction in my apiary.

I cannot do without the BEE JOURNAL, which I prize very much. Inclosed you will find two dollars for the current volume.—D. REEKIE.

SALEM, N. C., Sept. 5.—This has been a tolerably good year for bees. Out of forty-seven hives, I had thirty-five to swarm, which cast between seventy-five and eighty swarms. I had two swarms on the 25th of August.

The Italian bees have done very well; but the black bees have done poorly. I have been enabled to take about sixteen hundred pounds of surplus honey this season.

The prospects are good for an abundance of honey this year from the aster. Some seasons bees store from twenty-five to forty pounds, from this source.—J. W. HUNTER.

ALLENTON, MO., Sept. 8.—Bees have done well in this vicinity, in the way of swarming of stocks, but only very moderately in the way of storing surplus honey. I started in the spring with two Italian stocks. I now have nine good ones—had one stolen, and five good swarms left for the woods. I depended on natural swarming this year, being without experience in artificial modes; and having adopted a different hive from the one I commenced with, could not change from the old ones into the new. I think I shall have to adopt the artificial mode next year, seeing the swarms have such a predilection for running away.—T. R. A.

MADISON, WIS., Sept. 9.—The season in this part of Wisconsin has been better than the last. Although there has been a good deal of rain, which kept the honey thin, brooding went on nicely.

I have a honey pump, as the editor of the *State Journal* calls it. I made the outer case

big enough to hold the inner one, and I revolve the whole. It worked very well. I could take out a gallon of honey with it in about ten minutes. But for a large number of hives the stationary outside case is best. Making and material cost about three dollars.

I winter my bees in clamps. The worst trouble, when I take them out in the spring, is that they rob each other, and the robbers kill the queens. I had ten killed in that way last spring. For a clamp I put about four inches of dry leaves on top of the frames. They wintered best, and kept their hives the cleanest, and could best stand the changes of the weather, after I took them out in spring.

When the basswood blossoms were at the best, one hive gave me fifteen pounds of honey in one day—I only emptied the combs twice, for after the basswood blossoms end, the honey season for surplus is about over with us. No honey in buckwheat. What the bees gather now will not keep them going. By the middle of November, the hives are one-half lighter than they were on the 1st of August.—S. McL.

HAMILTON, ILLS., Sept; 9.—Bees did very well here, this summer. Some of my stands have gathered not less than one hundred and forty pounds of box honey, each, from the 5th of August to the 8th of September, although having had eight cold and rainy days meantime. —C. DADANT.

CHILLICOTHE, MO., Sept. 12.—Ever since the wet weather ceased, about July 20th, the season has been all the bees could wish for. They have swarmed the most ever known here, and kept it up until the 7th of this month, all the usual preventives to the contrary notwithstanding

The honey season is now as good as it has been at any time, and bees are dropping by thousands before their hives, completely tired out.

The white clover is still in plentiful bloom; and buckwheat, smartweed, "yellow blossom" or Spanish nettle, yield honey in abundance.

If the weather should continue favorable as late as it did two years ago, the bees will work a month longer and get in a plentiful harvest. I put two natural swarms together, and they filled their hive and gave me sixteen pounds of honey in three weeks. Who beats this?—J. W. GREENE.

GEDDES, N. Y., Sept. 14.—Bees have done very poorly in this country, having made scarcely any box honey. I had six stocks in the spring; increased one-third. Have not got any box honey, and shall have to double up some stocks and feed to winter them.—H. O. S.

DAYTON, OHIO, Sept. 14.—My bees have done very well, although this has been a poor season here, both for swarms and honey. I have wintered bees in almost all the ways recommended by your correspondents from time to time, but can only recommend "out door with protection" of "matting" or "straw," as safest and least trouble of any mode yet tried by me. I think your paper is more valuable every month.—E. D. P.

RICH VALLEY, MINN., Sept. 14—The season, though rather wet, has on the whole been quite favorable for the bees. Mine have done well, yielding an average of about fifty pounds of surplus honey per hive.

I am glad the BEE JOURNAL is receiving the support of all intelligent bee-keepers. Every lover of bees should take it; and though I have not obtained any new subscribers for it yet, I shall not fail to speak in its favor whenever the occasion offers.—L. M. L.

NEW RUTLAND, ILLS., Sept. 14.—Bees are doing splendidly in this section of country, this season.

Could not do without the BEE JOURNAL for four times its cost.—W. G. B.

[For the American Bee Journal.]

Honey-Emptying Machine.

In the February number of the BEE JOURNAL I noticed a description of a honey-emptying machine, but it was so inaccurately described that when I attempted to make one by the directions I found that it would be necessary to bore an inch hole through a three-quarter inch stick; and divers other things just as impracticable. So I gave it up, and made a machine on a plan of my own. I hand you a description of it below, and if any person will make one like it, he may depend upon having one that will do its work to perfection, and be smaller, neater, stronger, cheaper, and in every way better, than the one referred to. Mine cost me altogether about three dollars.

THOMAS C. HILL.

SYDNEY, C. B.

BILL OF STOCK FOR HONEY-EMPTYING MACHINE.

Bottom Board, ⅝ inch hole in centre.	10¼ x 10¼ x ⅞
Midddle Cleat, ⅝ inch hole in centre.	10¼ x 1½ x ⅞
2 Cleats	9¼ x 1½ x ⅞
4 Posts	19¼ x 1½ x ⅞
4 Side Cross-bars	10¼ x 1¼ x ⅝
4 End Cross-bars	11 x 1¼ x ⅝
2 Braces, halved together, hole in about centre, pointed ends	12½ x 1½ x ⅝
4 Strips	16¾ x ½ x ⅝
2 Pieces Wire Gauze	18 x 10¼
1 Shaft, Round Iron Rod	30 x ⅝
1 Piece hard wood across top of can with a ⅝ inch hole in the centre, for the shaft to revolve,	18½ x 2½ x 1

The lower end of the shaft is pointed and rests in an indentation in a piece of iron soldered to the botton of the can. The shaft has a hole through it, two inches from the bottom of the can, through which is put a piece of stout wire 1½ inches long to sustain the frames. This wire is let up into a groove in the cleat so as to

turn the frame. The posts are let into the sides of the bottom board, flush, side and end. At each of the two opposite corners of the bottom board is made a mortice $\frac{7}{8}$ inch deep, $1\frac{1}{4}$ inch long, and $\frac{3}{8}$ inch wide, to receive the projections on the ends of the comb frame. The can is $21\frac{1}{2}$ inches deep and $15\frac{1}{2}$ inches in diameter; and the ends of the End Cross-bars (top and bottom) are rounded off, to make the frame fit into the can.

[For the American Bee Journal.]

My Bee-Feeder Costs Twelve and a Half Cents.

Here is a description of it, which, if you place in the hands of a tinsmith, he will soon make you one.

Take a piece of tin ten inches square and make a square pan one and a half inches deep, after it is wired. Punch a hole through the bottom with an inch and a half hollow punch. Make a tube to fit, one inch long, and turn a burr on the bottom end; slip it into the pan from the bottom and solder it tight. Now cover one-third of the pan with a piece of tin. It may be cut the size of the pan, then lay it on the top and solder it on. Through this tin there should be a small hole punched to receive a funnel. Cover the remainder of the pan with a piece of glass, held in its place by little hooks of tin in such a manner that it may slide on or off; and your feeder is done.

To USE IT. Slide off the glass, and put in some small pieces of comb, to keep the bees from being drowned in the feed. Then slide on the glass; remove the honey box and place your feeder directly over the hole in the honey board. Now insert a funnel and fill up your feeder; remove the funnel, and put a cork in the hole. The bees will rush up through the tube into the feeder, but cannot escape. Robbers cannot reach the feed, without passing through the entire hive. The glass enables you to see when the feeder is empty, and by removing the cork the bees may be fed without disturbing them in the least. Try it.

J. H. THOMAS.

BROOKLIN, ONTARIO, Aug. 30, 1869.

[For the American Bee Journal]

To Prevent Swarming.

Mr. F. Daniels complains that his bees swarm too much, and do not give him honey enough. Perhaps that is his own fault. Let him remove the queens from his colonies at the opening of the full honey season, and destroy any queen cells that may have been started; examine his hives a week later, and again destroy the queen cells; and ten days after that introduce a young fertile queen. He will then not be troubled with swarms, and his bees will store honey, if there is any to be found.

J. LITTLE.

POESTENKILL, N. Y.

[For the American Bee Journal.]

The Italian Fling.

We often hear of the "Highland Fling," and sometimes we read of the Italian fling. Mr. S. W. writes thus:—"It rained most of the time until July 20th, and my bees did not store much honey up to that time. Black bees have done as well as the Italians have. I see no difference." See BEE JOURNAL, vol. 5, page 65.

Mr. W. has an apiary of not less than two hundred hives of black bees, and it seems, from his own confession, that they did not store much honey prior to July 20.

James M. Marvin has an apiary of three hundred hives of choice Italian bees, only six miles from Mr. W.'s, and in not so good a location; and before the 20th of July he had more than a ton of machine honey put up in large crocks, and his hives were still so rich in honey that the queen could only now and then find a few empty cells to use for eggs. This shows whether the black bees have done as well as the Italians.

Mr. W. says he can see no difference between the working of the two varieties of bees. The reason is obvious; as plain as the nose on your face—much the same as the blind man's for not seeing the eclipse. Mr. W. has no Italian bees in his apiary, nor ever has had any, and I doubt very much whether he has seen a full hive of them during the past season. Further comment is unnecessary.

M. M. BALDRIDGE.

ST. CHARLES, ILLS., Sept. 14, 1869.

[For the American Bee Journal.]

The Challenge Accepted.

In the BEE JOURNAL for September last (volume 5, number 3,) a very broad challenge is given by Mr. G. P. Kellogg, of Waukegan, Illinois, to inventors, &c., of bee hives.

I am an inventor, manufacturer, and user of a hive, and will accept the challenge of Mr. Kellogg, with the following conditions, viz: Provided the hive he exhibits is his own invention previous to this date; that the exhibition be made in the State of Wisconsin, within fifteen months from date, at the State or some County Fair, or at any Bee-keepers' Convention in the North-western States. The sum put up for premium, to suit himself, not exceeding his limit of fifty dollars; provided this is not considered betting. If Mr. Kellogg accepts my proposition, he may name the place, &c.

A. H. HART.

APPLETON, WIS., Sept. 1869.

It is one of the laws of the hive, that bees which have no mature queen, seldom build any cells except such as are designed merely for storing honey, and are too *large* for the rearing of *workers*.—LANGSTROTH.